

Inventory Notes

Initial Valuation of Inventory

- Definition: Includes all costs necessary to get the item ready and available for sale.
- Key Components:
 - o Cost of the inventory itself.
 - o Additional costs (e.g., shipping, handling, preparation) to make the inventory saleable.

Product Costs vs. Period Costs

- Product Costs:
 - o Included in inventory valuation.
 - o Also known as inventoriable costs.
 - o Examples: Direct materials, direct labor, and manufacturing overhead.
- Period Costs:
 - o Not included in inventory valuation.
 - o Expensed in the period incurred (e.g., administrative expenses, selling expenses).

What Units Are Included in Inventory

1. Goods in Transit - Receiving

- Determined by shipping terms:
 - o FOB Destination: Goods are not included in the buyer's inventory until they reach the destination.
 - o FOB Shipping Point: Goods are included in the buyer's inventory once shipped by the seller.

2. Consigned Goods

- Out on Consignment: Included in the consignor's inventory.
- Valuation: Same as regular inventory, including all costs necessary to get the item ready for sale to the customer.

3. Goods Out on Approval

- Inclusion: Included in the seller's inventory at the original cost until:
 - o The customer approves and purchases the goods, or
 - o The goods are returned by the customer.

4. Obsolete Inventory

- Status: Not considered inventory.
- Treatment: Not recorded as inventory; typically written off or adjusted to reflect reduced value.

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Standard Inventory Calculations

1. Cost of Goods Sold (COGS)

- **Formula:**

$$\text{COGS} = \text{Beginning Finished Goods Inventory} + \text{Purchases (for resellers) or Cost of Goods Manufactured (for manufacturers)} - \text{Ending Finished Goods Inventory}$$

- **Components:**

- **Beginning Finished Goods Inventory:** Value of inventory at the start of the period.
- **Purchases/Cost of Goods Manufactured:** Cost of inventory acquired or produced during the period.

- o **Ending Finished Goods Inventory:** Value of inventory remaining at the end of the period.

2. Cost of Goods Manufactured

- **Key Component:**
 - o **Direct Materials Used:** Cost of raw materials consumed in production.
 - o Other components include direct labor and manufacturing overhead (not detailed in provided points).

3. Gross Profit

- **Formula:**

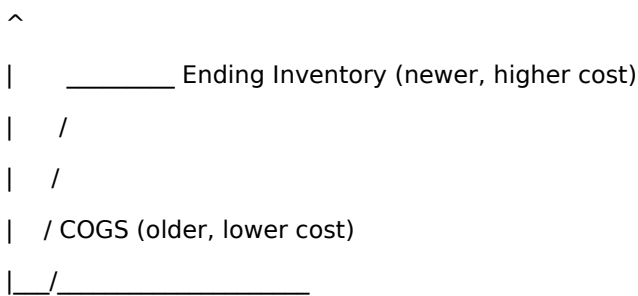
Gross Profit = Sales Revenue - Cost of Goods Sold

- **Components:**
 - o **Sales Revenue:** Total income from sales.
 - o **Cost of Goods Sold:** As calculated above.

Inventory Cost Flow Assumptions

1. FIFO (First-In, First-Out)

- **Definition:** Sells the oldest inventory first.
- **Results in Rising Costs:**
 - o Higher ending inventory (reflects newer, higher-cost units).
 - o Lower COGS (uses older, lower-cost units).
 - o Higher gross profit.
- **Graph:**
- Cost of a Unit of Inventory



2. LIFO (Last-In, First-Out)

- **Definition:** Sells the most recently purchased inventory first.
- **Results in Rising Costs:**
 - o Lower ending inventory (reflects older, lower-cost units).
 - o Higher COGS (uses newer, higher-cost units).
 - o Lower gross profit.
- **Graph:**

Cost of a Unit of Inventory

^

| _____ COGS (newer, higher cost)

| /

| /

| / Ending Inventory (older, lower cost)

|_____/_____

Time

3. Weighted Average

- **Definition:** Averages the cost of all inventory units to determine a single cost per unit.
- **Calculation:** Total cost of inventory divided by total units available.
- **Effect:** Smooths out price fluctuations, resulting in moderate COGS and ending inventory values.

4. Specific Identification

- **Definition:** Tracks each unit of inventory individually, assigning its specific cost to COGS when sold.
- **Use Case:** Suitable for high-value or unique items (e.g., cars, jewelry).

Effects of Cost Flow Assumptions

Scenario	FIFO	LIFO
Rising Prices		
Ending Inventory	Higher (newer, higher-cost)	Lower (older, lower-cost)
COGS	Lower (older, lower-cost)	Higher (newer, higher-cost)
Gross Profit	Higher	Lower

Falling Prices

Ending Inventory	Lower (newer, lower-cost)	Higher (older, higher-cost)
COGS	Higher (older, higher-cost)	Lower (newer, lower-cost)
Gross Profit	Lower	Higher

Which Method Should Be Used?

- **LIFO Preference:**
 - o Preferred when tax benefits are desired (higher COGS reduces taxable income in rising price scenarios).
 - o Less common due to IFRS restrictions; allowed under US GAAP.

Periodic vs. Perpetual Inventory Systems

Periodic Inventory System

- **Definition:** Inventory and COGS are determined at the end of the period.
- **Process:** Physical count or estimation at period-end.

Perpetual Inventory System

- **Definition:** Inventory and COGS are updated continuously with each transaction.
- **FIFO Perpetual:**
 - Identical to FIFO periodic in terms of cost flow (oldest units sold first).
- **LIFO Perpetual:**
 - New inventory becomes the "newest" layer each time a purchase is made.
 - COGS reflects the most recent costs at the time of sale.
- **LIFO Perpetual Graph:**

Cost of a Unit of Inventory

 $\wedge$

| _____ COGS (newest costs at sale)

1 /

1 /

| / Ending Inventory (older costs)

_____ / _____

Time

Moving Average (Perpetual)

- **Definition:** In a perpetual inventory system, every time new inventory is purchased, a new average cost is calculated for the entire inventory on hand.
- **Calculation:** $\text{Weighted average cost} = (\text{Total cost of inventory before purchase} + \text{Cost of new purchase}) / (\text{Total units before purchase} + \text{Units purchased})$.
- **Characteristics:**
 - o More administratively difficult than mathematically difficult due to frequent recalculations.
 - o Provides a running average cost, useful for real-time inventory valuation.
 - o Effect: Smooths out cost fluctuations over time, similar to weighted average but updated continuously.
- **Graph** (Illustrative of Cost Averaging Over Time):

Average Cost of Inventory

 $\wedge$

_____ New Average after Purchase 3

1 /

New Average after Purchase 2

1 /

|__/_ New Average after Purchase 1

Time (Purchases)

Physical Inventory Count

- **Requirement:** Required by GAAP (Generally Accepted Accounting Principles) for year-end reporting.
- **Purpose:** To physically verify the quantity and condition of inventory items to ensure the accuracy of perpetual or periodic inventory records.
- **Process:**
 - o Stop operations or count during off-hours to avoid disruptions.
 - o Use count sheets, tags, or scanners to record actual counts.
 - o Compare physical count to book records and adjust for variances (e.g., shrinkage, theft, errors).
- **Importance:** Helps detect discrepancies, prevent fraud, and ensure financial statements reflect true inventory values.

Errors in Inventory

- **Approach:** Best to perform two calculations to verify results and understand the impact of errors (e.g., calculate COGS and gross profit with and without the error).
- **Key Formulas Involved:**
 - o **Cost of Goods Sold (COGS):** Beginning Inventory + Purchases - Ending Inventory.
 - o **Ending Inventory:** Valued based on cost flow assumptions (FIFO, LIFO, etc.).
- **Effect of Inventory Errors:**
 - o Errors in beginning or ending inventory directly affect COGS and gross profit.
 - o Table summarizing effects:

Inventory Error	COGS Effect	Gross Profit Effect
Beginning Inventory Overstated	Overstated	Understated
Beginning Inventory Understated	Understated	Overstated
Ending Inventory Overstated	Understated	Overstated
Ending Inventory Understated	Overstated	Understated

- **Explanation:**
 - o Overstated beginning inventory increases COGS (since $\text{COGS} = \text{Beginning} + \text{Purchases} - \text{Ending}$), leading to understated gross profit ($\text{Sales} - \text{COGS}$).
 - o Understated ending inventory increases COGS, leading to understated gross profit.
 - o Errors typically reverse in the next period, but correct identification is crucial for accurate financial reporting.

Lower of Cost or Market (LCM)

Two Methods

1. Lower of Cost or Market (Used for LIFO or Retail Method)

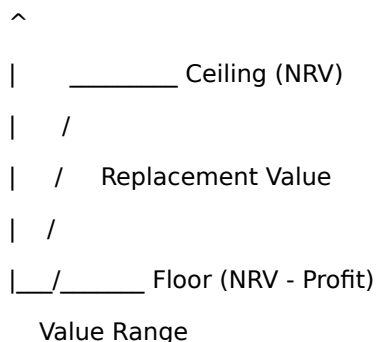
- o **Inventory Valuation:** Recorded at the lower of:
 - **A. Cost:** Historical price determined by historical cost-based methods (e.g., FIFO, LIFO).
 - **B. Market Value:** Refers to the market where the company purchases goods, typically the replacement value.
- o **Replacement Value:** Preferred market value, representing the cost to replace the inventory.
- o **The Corridor:**
 - **Ceiling:** Net Realizable Value (NRV), calculated as:

$$\text{NRV} = \text{Selling Price} - \text{Cost to Complete/Dispose}$$

- **Floor:** NRV minus a normal profit margin.

$$\text{Floor} = \text{NRV} - \text{Normal Profit Amount}$$

- **Graph (Corridor Illustration):** Market Value



2. Lower of Cost or Net Realizable Value (Used for methods other than LIFO or Retail)

- o **Definition:** Inventory is valued at the lower of cost or NRV.
- o **NRV Calculation:** Estimated selling price in the ordinary course of business, minus reasonably predictable costs of selling (completion, disposal, transportation).

Writing Down Inventory

- **Condition:** When market value or NRV is lower than cost, the difference (loss) must be written off to a loss account.
- **Recovery of Previous Decline:** Inventory can be written back up to its original cost if recovery occurs in the period of the write-down.

LCM under IFRS

- **Market Value:** Defined as net realizable value (NRV) under IFRS standards.

Applying LCM to Inventory

- Can be applied to individual items, categories, or the entire inventory, depending on company policy and accounting standards.